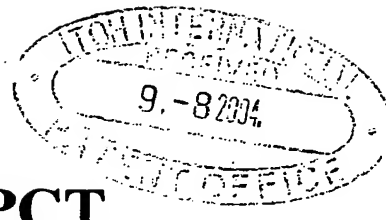


PATENT COOPERATION TREATY



From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

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Date of mailing
(day/month/year)

07.9.2004

Applicant's or agent's file reference

R04084PCT

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/007458

International filing date (day/month/year)

25.05.2004

Priority date (day/month/year)

30.05.2003

International Patent Classification (IPC) or both national classification and IPC

Int.Cl. **B41J19/18, B41J2/01**

Applicant

RICOH COMPANY, LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Japan Patent Office

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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/007458

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/ 007458

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 3, 6, 7, 10-30, 32-38	YES
	Claims	1, 4, 5, 8, 9, 31, 39-44	NO
Inventive step (IS)	Claims		YES
	Claims	1-44	NO
Industrial applicability (IA)	Claims	1-44	YES
	Claims		NO

2. Citations and explanations

The following document has been considered for the purpose of this report.

D1: JP 9-193499 A(Sony Corporaion) 1997.07.29

D2: JP 7-156472 A(Mita Industrial Co.,Ltd.) 1995.06.20

D3: JP 2001-322279 A(Hewlett-Packard Company) 2001.11.20
& EP 1151868 A2 & US 6481823 B1

D4: JP 11-192692 A(CANON KABUSHIKI KAISHA) 1999.07.21

D5: JP 5-8383 A(CANON KABUSHIKI KAISHA) 1993.01.19

D6: JP 2001-251878 A(SEIKO EPSON CORPORATION) 2001.09.14
& EP 1129856 A1 & US 2001/0035724 A1 & US 2003/0205982 A1

D7: JP 6-143722 A(CANON KABUSHIKI KAISHA) 1994.05.24

D8: JP 2002-127392 A(CANON KABUSHIKI KAISHA) 2002.05.08

D9: JP 4-341882 A(Fujitsu Limited) 1992.11.27

D10: JP 11-291477 A(CANON KABUSHIKI KAISHA) 1999.10.26
& EP 0947332 A2 & US 6416151 B1 & US 2002/0158936 A1

Claim 1,4,5,8,9

The subject matter of claim 1,4,5,8,9 does not appear to be novel with respect to D1. D1 discloses that "An image forming apparats that forms an image on a recording medium, comprising: a detector provided in said carriage so as to detect a leading edge of said recording medium and a width of said recording medium in a direction of scanning."

Claim 5,8,9,31,39-44

The subject matter of claim 5,8,9,31,39-44 does not appear to be novel with respect to D2.

D2 discloses that "An image forming apparats that forms an image on a recording medium, comprising: a width of said recording medium in a direction of scanning, wherein when moving said carriage in a main-scanning direction to perform a printing operation, a part of the printing operation is cancelled after said detector detects non-presence of the recording medium."

Claim 2,3,6,7

The subject matter of claim 2,3,6,7 does not involve an inventive step over D1-D3. Technical features "a detector" and "an analog/digital processing circuit that transmits an output signal of said detector", disclosed in D1,D2 and D3 respectively, have the

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: **Box No. V 2**

same function and are related to similar technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature "an analog/digital processing circuit that transmits an output signal of said detector" in D3 to substitute the feature "a detector" disclosed in D1,D2.

Claim 10-14,20,23-30

The subject matter of claim 10-14,20,23-30 does not involve an inventive step over D1,2,4.

Technical features "a detector" and "a state detector that detects a state of an interior of said carriage or a state of an area surrounding said carriage", disclosed in D1,D2 and D4 respectively, have the same function and are related to similar technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature "a state detector that detects a state of an interior of said carriage or a state of an area surrounding said carriage" in D4 to substitute the feature "a detector" disclosed in D1,D2.

Claim 15

The subject matter of claim 15 does not involve an inventive step over D1,2,5

Technical features "a detector" and "an infrared light sensor", disclosed in D1,D2 and D5 respectively, have the same function and are related to similar technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature "an infrared light sensor" in D5 to substitute the feature "a detector" disclosed in D1,D2.

Claim 16-19

The subject matter of claim 16-19 does not involve an inventive step over D1,2,6,7.

The technical feature "an image forming apparatus comprising: a detector" in D1,2 and the feature "an image forming apparatus comprising: a temperature sensor that detects a temperature of an area surrounding said carriage; and a control part that corrects an amount of rotation of said drive roller/changes a drive waveform applied to said recording head/changes a drive waveform applied to said drive part in accordance with a result of detection of said a temperature sensor" in D6,7 are concerned with mutually related technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature in D6,7 to substitute the feature disclosed in D1,2.

Claim 21,22

The subject matter of claim 21,22 does not involve an inventive step over D1-3,8

Technical features "a detector that detects a leading edge of said recording medium/a width of said recording medium in a direction of scanning" and "a detector that determines a kind of the recording medium", disclosed in D1,D2 and D8 respectively, have the same function and are related to similar technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature "a detector that determines a kind of the recording medium" in D8 to substitute the feature "a detector that detects a leading edge of said recording medium/a width of said recording medium in a direction of scanning" disclosed in D1,D2.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box No. V 2

Claim 32-38

The subject matter of claim 32-38 does not involve an inventive step over D2,9,10. Technical features "a detector that provided on an upstream side of said carriage in feed direction of the recording medium" and "a detector that provided on an upstream side of said carriage in main-scanning direction", disclosed in D2 and D9,10 respectively, have the same function and are related to similar technical fields. Therefore, the skilled person in the art would easily conceive the idea of employing the feature "a detector that provided on an upstream side of said carriage in main-scanning direction" in D9,10 to substitute the feature "a detector that provided on an upstream side of said carriage in feed direction of the recording medium" disclosed in D2. And D10 discloses that "said carriage is movable bidirectionally so as to perform bidirectional printing."